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Velocity vector imaging for measuring regional myocardial function in patients with hypertrophic cardiomyopathy

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Objectives: To determine the efficacy of velocity vector imaging (VVl) in assessing regional myocardial function of left ventricle (LV) in patients with hypertrophic cardiomyopathy (HCM)
Methods: Twenty-two HCM patients and thirty normal subjects underwent conventional echocardiography. Two dimensional dynamic images from apical four chamber, long axis view of LV, parasternal short axis view of valvula mitralis level were obtained for offline analysis. The strain rate (SR) of sixteen segments of LV was measured by VVI.
Results: The E/A ratio of HCM were significant lower than control (0.94±0.21 vs 1.21±0.23; P<0.05), but there is no significant difference of LVEF between groups (61.98±7.73 vs 64.57±6.58; P>0.05) . Whatever in longitudinal or radial direction, the systolic and diastolic SR of different segments in HCM were significantly lower than control (eg. longitudinal direction, systolic phase, basal segment of anterior septal: -0.70±0.22 vs -1.45±0.13, P<0.05), and the SR of the septal and posterior wall was significantly lower than other walls in HCM (eg. longitudinal direction, systolic phase, basal segment of anterior septal vs lateral wall: -0.70±0.22 vs -1.05±0.23, P<0.05).
Conclusions: VVI can assess SR of different segments in both longitudinal and radial direction, and can be used to measure regional myocardial function of LV in HCM patients effectively.

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The prevalence and prognostic effects of subclinical thyroid dysfunction in dilated cardiomyopathy patients: a single-center cohort study

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Objectives: Subclinical thyroid dysfunction may be a risk factor for mortality in patients with heart failure, and it may be associated with dilated cardiomyopathy (DCM) . The present study is the first cohort study to examine the possible association between subclinical thyroid dysfunction and all-cause mortality in only DCM patients as the current evidence on this association remains elusive.
Methods: A retrospective cohort study examining 963 hospitalized DCM patients at Fuwai Hospital was performed between November 2003 and September 2011. Standard demographics, echocardiography and routine blood samples were obtained from all subjects shortly after admission. The outcomes were assessed using all-cause mortality after a mean follow-up period of 3.5±2.3 years and were analyzed using Kaplan-Meier survival curves (i.e., log-rank tests) and Cox regression analysis.
Results: A total of 963 DCM patients were evaluated for thyroid function. Of these patients, 7.1% (n=68) had subclinical hyperthyroidism (defined as serum TSH <0.35 μIU/mL), 84.7% (n=816) had euthyroidism (TSH 0.35-5.5 μIU/mL), and 8.2% (n=79) had subclinical hypothyroidism (TSH >5.5 μIU/mL). There was a significant difference in the all-cause mortality rate between patients with euthyroidism and patients with subclinical hyper- and hypothyroidism (21%, 38.2%, and 26.6%, respectively, log-rank χ^2=13.104, P=0.001) with mean follow-up 3.5 years. After adjustment for other confounding factors at baseline, QRS duration, N-terminal fragment pro-brain natriuretic peptide, NYHA functional class, left atrium diameter and subclinical hyperthyroidism (HR 1.793, 95% CI 1.010-3.183, P=0.046) emerged as significant predictors of all-cause mortality.
Conclusions: Subclinical hyper- and hypothyroidism in DCM patients had higher all-cause mortality rate. However, only subclinical hyperthyroidism, not subclinical hypothyroidism, was an independent predictor for increased risk of all-cause mortality.

GW25-e1569

The Analysis of Reasons for Apical Hypertrophic Cardiomyopathy Misdiagnosed

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Objectives: To analyse the possible reasons why patients with apical hypertrophic cardiomyopathy were misdiagnosed.
Methods: 12 cases in our hospital during passed 3 years were colleted and their dates including clinical feature, electrocardiogram, echocardiogram and other imaging examination characteristics were analysed retrospectively.
Results: In these 12 cases, there were 7 cases having giant inverted T waves on their electrocardiogram, and the other 5 cases also having similar T wave shapes but not meeting the typical T waves standards, 3 and 2 cases of them were diagnosed as early apical hypertrophic cardiomyopathy and apical hypertrophic cardiomyopathy respectively. All cases were finally confirmed the correct diagnosis using echocardiogram under co-operation by ultrasound doctors and clinicians.
Conclusions: Giant inverted T wave is one of the typical characteristics of apical hypertrophic cardiomyopathy, which would be very easy for clinicians to make misdiagnose of coronary heart disease in clinical practice. On the other hand, the conventional section of echocardiogram is hard to observe cardiac apex, thus apical hypertrophy is easy to be missed by ultrasound doctors. Only if clinicians and ultrasound doctors raise their understanding about this kind of disease can we reduce the chance misdiagnosed.

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The prognostic risk factors of patients with dilated cardiomyopathy: a single-center cohort study

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Objectives: Clinical parameters are associated with poor outcomes in patients with known cardiac diseases. The prognostic implications of many parameters in dilated cardiomyopathy (DCM) patients, however, need to be evaluated. The purpose of this study was to determine all-cause mortality in DCM with some clinical parameters.
Methods: A retrospective observational cohort study was undertaken in 1317 patients with DCM. Standard demographics, transthoracic echocardiography, and routine blood testings were obtained shortly after admission. Outcome was assessed with all-cause mortality after admission. All-cause mortality was analyzed by Kaplan-Meier survival curve and Cox regression.
Results: The cohort consisted of 1142 patients with DCM with mean follow-up of 3.6±2.3 years, of which 23.6% (n=270) had died, 76.4% (n=872) have survived. Among the clinical, laboratory, electrograph and electrocardiographic data, univariate analysis revealed ventricular premature beat, disease course, NYHA functional class, SBP, QRS duration, LV, LVEF, RV, LA, pulmonary hypertension, NT-pro-BNP, creatine and FBG as significant predictors for the all-cause mortality in patients with DCM. After adjusting with age, gender, smoking and drinking status, RV, LVEF and pulmonary hypertension, Cox multivariate analysis showed that ventricular premature beat, SBP, QRS duration, LA, NT-pro-BNP and FBG were the powerful independent predictors of all-cause mortality in patients with DCM.
Conclusions: The presence of ventricular premature beat, SBP, QRS duration, LA, NT-pro-BNP and FBG were the powerful independent predictors of all-cause mortality in patients with DCM.

GW25-e2267

A long-term fellow-up study in HOCM patients after percutaneous transluminal septal myocardial ablation therapy

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Objectives: To evaluate the long-term efficicy of PTSMA in patients with HOCM and the effection of medication treatment to left ventricular structure and LVOTPG, evaluate the accuracy of TDE quantitative estimation of LVOTPG.
Methods: (1) All the HOCM patients with PTSMA during January 2005 to October 2013 underwent TDE examination and LVOTPG determinnation a week before the operation, and catheter measured LVOTPG again in the operation. (2)All the patients were followed up for 1-24 months, the average (17.00±8.20) months, included the change of clinical symptoms, postoperative medication case, LVOTPG, cardiac structure and function.
Results: (1) Pearson correlation analysis and the Bland-Altman method of TDE and left heart catheterization measuring LVOTPG, showed that the measurement of LVOTPG by TDE is an important and effective non-invasive inspection approach. (2) All the HOCM patients with PTSMA immediately LVOTPG is 3-78mmHg, decreased significantly compared with preoperative [(29.16±18.70) mm Hg and preoperative (120.48±49.28) mm Hg, P <0.01]. On postoperative patients (One pa tient died from acute myocardial infarction 4 hours after ablation) to track follow-up 1-24 months, averaged (17.00±8.20) a month; 24 cases with obstructive symptoms were lessened or disappeared after operation, significantly improved quality of life compared with the preoperative.There was no significant difference etheir between the two groups except the average LVOTPG overall the trend of the curves.
Conclusions: (1) The LVOTPG estimated by TDE was highly correlated with it left heart catheterization measurement LVOTPG, TDE can be used as the main noninvasive diagnostic left ventricular outflow tract obstruction, but it cannot completely replace left heart catheterization . (2) The average LAD on a gradually improved trend, with its apparent improvement occurred in less than 2 weeks after operation; The average thickness of IVS basal segment, LVOTD, LVOTPG showed a gradually improvinged trend, with their apparent improvement occurred in 2 weeks-3 months Postoperative. All of them had continued to improve in 24 months postoperative. (3) The left ventricular EF % value decreased significantly in 2 weeks postoperation, but to recover slightly near to preoperative levels after 1-3 months, no significant changes to the operation within 24 months. (4) There was no significant difference between the two groups except the average LVOTPG, but it showed a gradually improved trend of all the items, and they had still changes in 24 months postoperative. We could not blindly deny continuing taking the pills, but recommended that patients continue to taking the pills ruly. (5) TDE indications in screening the HOCM patients, the PTSMA intraoperative monitoring, and the postoperative evaluation all have great value. (6) PTSMA is a effective treatment in patients with HOCM and effective minimally invasive approach, but because of a destructive operation, the risks should be strictly controlled.